

PATENT SPECIFICATION

NO DRAWINGS

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842,791



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International Classification:—C07d. C09b. C11d.

COMPLETE SPECIFICATION

Non-Dusting Compositions

We, IMPERIAL CHEMICAL INDUSTRIES LIMITED, of Imperial Chemical House, Millbank, London, S.W.1, England, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to non-dusting compositions of dyestuffs and other products of chemical manufacture which are in the form of finely divided solids.

It is well known that many dyestuffs and other products of chemical manufacture when in the powdered condition are a nuisance to handle because of the dust problem. Although treatment of the powders with various agents such as mineral oils or waxes has been suggested to reduce dustiness, such treatments are not always entirely satisfactory.

We have now found that certain polar organic liquids are surprisingly effective when employed for the treatment of dyestuffs and other products of chemical manufacture to suppress or reduce dustiness. The polar organic liquids have viscosities less than 50 centipoises at 20° C. and contain one or more alkyl radicals attached to one of the following polar groups:—

- Alkenyl ($-\text{CH}=\text{CH}-$)
- Aryl or substituted aryl
- Ether oxygen ($-\text{O}-$)
- Thioether ($-\text{S}-$)
- Mercapto
- Carbonyl ($-\text{C}-$)



- Cyano
- N-substituted carbamyl ($-\text{CON}=\text{O}$)
- Amino including substituted amino
- Sulphonyl
- The polar organic liquids contain between 15 and 30 carbon atoms in the molecule. The

alkyl radicals attached to the polar groups may have either a straight or a branched chain but each contains between 4 and 18 carbon atoms.

Thus according to the present invention we provide a new non-dusting composition of a finely divided dyestuff or other product of chemical manufacture which comprises an intimate mixture of such a product with from 0.1% to 2% by weight of a polar organic liquid having a viscosity less than 50 centipoises at 20° C. said polar organic liquid containing from 15 to 30 carbon atoms in the molecule and consisting of a polar group as hereinbefore defined bearing sufficient straight or branched chain alkyl radicals each containing from 4 to 18 carbon atoms to satisfy the valencies of the polar group.

According to a further feature of the invention we provide a process for manufacturing a non-dusting composition of a finely divided dyestuff or other product of chemical manufacture which comprises intimately mixing from 0.1% to 2% by weight of a polar organic liquid as defined above with such a product before, during or after conversion of the product to the finely divided condition.

As examples of dedusting agents suitable for use in preparing the compositions of the present invention we mention octadecene, dodecyl benzene, dimonyl ether, dibutyl lauramide and dibutyl stearamide, of those dodecyl benzene is especially valuable.

Among the types of dyestuffs and products of chemical manufacture which are sold as powders and which are improved by treatment according to the process of the invention, we mention water-insoluble dyes for dyeing cellulose acetate rayon, as for example Duranol Red X3B (C.I. 62015), Dispersol Fast Yellow G (C.I. 11855), Dispersol Fast Red R (C.I. 11130) and Duranol Blue G (C.I. 63305), water-soluble surface active

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agents such as the condensation products of naphthalene sulphonic acids with formaldehyde, and rubber chemicals.

- 5 The polar organic liquids may be incorporated with the products to be dedusted by grinding the products in presence of the polar organic liquid, or by mixing or by any other convenient method.

- 10 The invention is illustrated but not limited by the following examples in which parts and percentages are by weight.

EXAMPLE 1.

Duranol Blue G 300 Powder 100 parts
Octadecene 0.5 part

- 15 The Duranol Blue G Powder (50 grams) is weighed into a 1 lb. Kilner Jar, and 0.25 grams of octadecene added dropwise from a pipette. Twelve $\frac{3}{8}$ " steel balls are added, the bottle sealed, and shaken for five minutes.
20 The resultant powder is substantially free from an associated dust cloud when the bottle is shaken vigorously.

EXAMPLE 2.

Duranol Red X3B Powder Fine 100 parts
Dodecyl benzene 0.5 part

- 25 The blending is carried out as in Example 1. The resultant powder is substantially free from an associated dust cloud when the bottle is shaken vigorously.

EXAMPLE 3.

1 part of dodecyl benzene is added to 100 parts of the finely powdered dyestuff Colour Index Basic Red 13, the blending being carried out as in Example 1. The resultant
35 powder is substantially free from an associated dust cloud when the container in which it is present is shaken vigorously.

EXAMPLE 4.

- 40 1 part of dodecyl benzene is added to 100 parts of the finely powdered dyestuff Dispersol Fast Orange B, the blending being carried out as in Example 1. The resultant powder is substantially free from an associated dust cloud when the container in
45 which it is present is shaken vigorously.

EXAMPLE 5.

- 1 part of dodecyl benzene is added to 100 parts of the finely powdered orange dyestuff prepared according to Example 2 of U.K. Patent No. 785,120, the blending being
50 carried out as in Example 1. The resultant powder is substantially free from an associated dust cloud when the container in which it is present is shaken vigorously.

EXAMPLE 6.

- 55 1 part of dodecyl benzene is added to 100 parts of the finely powdered sodium salt of the condensation product of naphthalene sulphonic acid and formaldehyde, the blending

being carried out as in Example 1. The resultant powder is substantially free from an associated dust cloud when the container in which it is present is shaken vigorously. 60

EXAMPLE 7.

1 part of trioctylamine is added to 100 parts of the finely powdered sodium salt of the condensation product of naphthalene sulphonic acid and formaldehyde, the blending being carried out as in Example 1. The resultant powder is substantially free from an associated dust cloud when the container in
70 which it is present is shaken vigorously.

EXAMPLE 8.

1 part of octadecene is added to 100 parts of finely powdered 2:4-dichloro-6-(2'-chloro-anilino)-s-triazine, the blending being carried out as in Example 1. The resultant powder is substantially free from an associated dust cloud when the container in which it is present is shaken vigorously. 80

WHAT WE CLAIM IS:—

1. New non-dusting composition of a finely divided dyestuff or other product of chemical manufacture which comprises an intimate mixture of such a product with from 0.1% to 2% by weight of a polar organic liquid having a viscosity less than 50 centipoises at 20° C. said polar organic liquid containing from 15 to 30 carbon atoms in the molecule and consisting of a polar group as hereinbefore defined bearing sufficient straight or branched chain alkyl radicals each containing from 4 to 18 carbon atoms to satisfy the valencies of the polar group. 85

2. Non-dusting composition according to Claim 1, wherein the polar group is aryl or substituted aryl. 95

3. Non-dusting composition according to Claim 2 wherein the polar organic liquid is dodecyl benzene. 100

4. Non-dusting composition according to any of the above claims, wherein the finely divided dyestuff is a water-insoluble cellulose acetate rayon dyestuff.

5. A process for manufacturing a non-dusting composition of a finely divided dyestuff or other product of chemical manufacture which comprises intimately mixing from 0.1% to 0.2% by weight of a polar organic liquid as hereinbefore defined in Claim 1, with such a product before, during or after conversion of the product to the finely divided condition. 105

6. A process according to Claim 5, wherein the polar group is aryl or substituted aryl. 115

7. A process according to either of Claims 5 and 6, wherein the finely divided dyestuff is a water-insoluble acetate rayon dyestuff.

8. A process for manufacturing a non-dusting composition of a finely divided dyestuff or other product of chemical manufacture 120

substantially as described in any of the foregoing examples.

WALTER SCOTT,
Agent for the Applicants.

PROVISIONAL SPECIFICATION

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